

IN THE CLAIMS

Please amend claims 27, 33, 39, 45, 48, 49, 56 and 57 as follows:

1. (PREVIOUSLY PRESENTED) A method of transmitting a coded signal having an upper layer signal and a lower layer signal, comprising the steps of:
 - combining the upper layer signal and the lower layer signal;
 - encoding the combined upper layer signal and lower layer signal;
 - assigning first symbols to the upper layer signal portion of the encoded combined upper layer signal and the lower layer signal;
 - assigning second symbols to the lower layer signal portion of the encoded combined upper layer signal and the lower layer signal;
 - delaying the first symbols;
 - mapping and modulating the delayed first symbols;
 - mapping and modulating the second symbols;
 - transmitting the delayed mapped and modulated first symbols; and
 - transmitting the mapped and modulated second symbols.
2. (ORIGINAL) The method of claim 1, wherein the step of encoding the combined upper layer signal and lower layer signal further comprises the step of inserting timing data into the encoded combined upper layer signal and lower layer signal, the timing data including predetermined lower layer signal data.
3. (ORIGINAL) The method of claim 2, wherein the timing data includes blocks of initialization data.
4. (ORIGINAL) The method of claim 2, wherein the timing data is inserted periodically.
5. (ORIGINAL) The method of claim 1, wherein the step of encoding the combined upper layer signal and lower layer signal further comprises the step of inserting timing data into at least a portion of the upper layer signal and into the lower layer signal.

6. (ORIGINAL) The method of claim 5, wherein the timing data includes blocks of initialization data.

7. (ORIGINAL) The method of claim 5, wherein the timing data is inserted periodically.

8. (ORIGINAL) The method of claim 1, wherein the upper layer signal is delayed by an amount of time necessary for a receiver of the transmitted coded signal to remodulate and re-encode a demodulated upper layer signal.

9. (PREVIOUSLY PRESENTED) An apparatus for transmitting a coded signal having an upper layer signal and a lower layer signal, comprising:

- means for combining the upper layer signal and the lower layer signal;
- means for encoding the combined upper layer signal and lower layer signal;
- means for assigning first symbols to the upper layer signal portion of the encoded combined upper layer signal and the lower layer signal;
- means for assigning second symbols to the lower layer signal portion of the encoded combined upper layer signal and the lower layer signal;
- means for delaying the first symbols;
- means for mapping and modulating the delayed first symbols;
- means for mapping and modulating the second symbols;
- transmitting the delayed mapped and modulated first symbols; and
- means for transmitting the mapped and modulated second symbols.

10. (ORIGINAL) The apparatus of claim 9, wherein the means for encoding the combined upper layer signal and lower layer signal further comprises means for inserting timing data into the encoded combined upper layer signal and lower layer signal, the timing data including predetermined lower layer signal data.

11. (ORIGINAL) The apparatus of claim 10, wherein the timing data includes blocks of initialization data.

12. (ORIGINAL) The apparatus of claim 10, wherein the timing data is inserted periodically.

13. (ORIGINAL) The apparatus of claim 9, wherein the means for encoding the combined upper layer signal and lower layer signal further comprises means for inserting timing data into at least a portion of the upper layer signal and into the lower layer signal.

14. (ORIGINAL) The apparatus of claim 13, wherein the timing data includes blocks of initialization data.

15. (ORIGINAL) The apparatus of claim 13, wherein the timing data is inserted periodically.

16. (ORIGINAL) The apparatus of claim 9, wherein the upper layer signal is delayed by an amount of time necessary for a receiver of the transmitted coded signal to remodulate and re-encode a demodulated upper layer signal.

17. (PREVIOUSLY PRESENTED) An apparatus for transmitting a coded signal having an upper layer signal and a lower layer signal, comprising:

an encoder, for encoding a combined upper layer signal and lower layer signal;

a first symbol assigner, for assigning first symbols to the upper layer signal portion of the encoded combined upper layer signal and the lower layer signal;

a second symbol assigner, for assigning second symbols to the lower layer signal portion of the encoded combined upper layer signal and the lower layer signal;

a delay element, communicatively coupled to the first symbol assigner, for delaying the first symbols;

a first mapper and modulator, for mapping and modulating the delayed first symbols;

a second mapper and modulator, for mapping and modulating the second symbols;

a transmitter, communicatively coupled to the first mapper and modulator, for transmitting the delayed mapped and modulated first symbols; and

a second transmitter, communicatively coupled to the second mapper and modulator, for transmitting the mapped and modulated second symbols.

18. (ORIGINAL) The apparatus of claim 17, wherein the encoder inserts timing data into the encoded combined upper layer signal and lower layer signal, the timing data including predetermined lower layer signal data.

19. (ORIGINAL) The apparatus of claim 18, wherein the timing data includes blocks of initialization data.

20. (ORIGINAL) The apparatus of claim 18, wherein the timing data is inserted periodically.

21. (ORIGINAL) The apparatus of claim 17, wherein the encoder inserts timing data into at least a portion of the upper layer signal and into the lower layer signal.

22. (ORIGINAL) The apparatus of claim 21, wherein the timing data includes blocks of initialization data.

23. (ORIGINAL) The apparatus of claim 21, wherein the timing data is inserted periodically.

24. (ORIGINAL) The apparatus of claim 17, wherein the upper layer signal is delayed by an amount of time necessary for a receiver of the transmitted coded signal to remodulate and re-encode a demodulated upper layer signal.

25. (ORIGINAL) A method of decoding a coded input signal having an upper layer modulated signal and a lower layer modulated signal, comprising the steps of:

- demodulating the input signal to produce an upper layer signal;
- delaying the input signal;
- demodulating the delayed input signal to produce a lower layer signal;
- combining the upper layer signal and the lower layer signal; and
- decoding the combined upper layer signal and the lower layer signal.

26. (ORIGINAL) The method of claim 25, wherein:

- the coded input signal includes initialization data having predetermined lower layer signal data; and

- the combined upper layer signal and the lower layer signal are decoded according to the initialization data.

27. (CURRENTLY AMENDED) The method of claim ~~[[25]]~~ 26, wherein:

- at least a portion of the coded input signal includes a separately encoded upper layer signal and lower layer signal; and

- the at least a portion of the coded input signal is decoded according to the initialization data.

28. (ORIGINAL) The method of claim 25, wherein the step of demodulating the delayed input signal to produce a lower layer signal comprises the steps of:

re-encoding and remodulating the upper layer signal;

extracting the lower layer signal from the input signal by subtracting the re-encoded and remodulated upper layer signal from the input signal.

29. (ORIGINAL) The method of claim 28, wherein the input signal is delayed by an amount of time necessary to re-encode and remodulate the upper layer signal.

30. (ORIGINAL) The method of claim 25, further comprising the step of de-interleaving the decoded combined upper layer signal and the lower layer signal.

31. (ORIGINAL) An apparatus for decoding a coded input signal having an upper layer modulated signal and a lower layer modulated signal, comprising:

means for demodulating the input signal to produce an upper layer signal;

means for delaying the input signal;

means for demodulating the delayed input signal to produce a lower layer signal;

means for combining the upper layer signal and the lower layer signal; and

means for decoding the combined upper layer signal and the lower layer signal.

32. (ORIGINAL) The apparatus of claim 31, wherein:

the coded input signal includes inserted initialization data having predetermined lower layer signal data; and

the combined upper layer signal and the lower layer signal are decoded according to the initialization data.

33. (CURRENTLY AMENDED) The apparatus of claim ~~[[31]]~~ 32, wherein:
at least a portion of the coded input signal includes a separately encoded upper layer signal and lower layer signal; and

the at least a portion of the coded input signal is decoded according to the initialization data

34. (ORIGINAL) The apparatus of claim 31, wherein the means for demodulating the delayed input signal to produce a lower layer signal comprises:

means for re-encoding and remodulating the upper layer signal;

means for extracting the lower layer signal from the input signal by subtracting the re-encoded and remodulated upper layer signal from the input signal.

35. (ORIGINAL) The apparatus of claim 34, wherein the input signal is delayed by an amount of time necessary to re-encode and remodulate the upper layer signal.

36. (ORIGINAL) The apparatus of claim 31, further comprising the step of de-interleaving the decoded combined upper layer signal and the lower layer signal.

37. (ORIGINAL) An apparatus for decoding a coded input signal having an upper layer modulated signal and a lower layer modulated signal, comprising:

a demodulator for demodulating the input signal to produce an upper layer signal;

a delay element, communicatively coupled to the input signal for delaying the input signal;

a second demodulator for demodulating the delayed input signal to produce a lower layer signal, the second demodulator communicatively coupled to the delay element;

a combiner for combining the upper layer signal and the lower layer signal, the combiner communicatively coupled to the first demodulator and the second demodulator; and

a decoder, communicatively coupled to the combiner, the decoder for decoding the combined upper layer signal and the lower layer signal.

38. (ORIGINAL) The apparatus of claim 37, wherein:

the coded input signal includes inserted initialization data having predetermined lower layer signal data; and

the combined upper layer signal and the lower layer signal are decoded according to the initialization data.

39. (CURRENTLY AMENDED) The apparatus of claim ~~[[37]]~~ 38, wherein:

at least a portion of the coded input signal includes a separately encoded upper layer signal and lower layer signal; and

the at least a portion of the coded input signal is decoded according to the initialization data.

40. (ORIGINAL) The apparatus of claim 37, further comprising:

an encoder communicatively coupled to the decoder, the encoder for re-encoding the upper layer signal;

a modulator, communicatively coupled to the encoder, the modulator for remodulating the upper layer signal; and

a differencer module, communicatively coupled to the modulator and the second demodulator, for extracting the lower layer signal from the input signal by subtracting the re-encoded and remodulated upper layer signal from the input signal.

41. (ORIGINAL) The apparatus of claim 40, wherein the input signal is delayed by an amount of time necessary to re-encode and remodulate the upper layer signal.

42. (ORIGINAL) The apparatus of claim 37, further comprising a de-interleaver, communicatively coupled to the decoder, the de-interleaver for de-interleaving the decoded combined upper layer signal and the lower layer signal.

43. (CANCELED)

44. (CANCELED)

45. (CURRENTLY AMENDED) A method of decoding a coded input signal having an upper layer modulated signal and a lower layer modulated signal, comprising the steps of:

demodulating the input signal to produce an encoded upper layer signal;

demodulating the input signal to produce an encoded lower layer signal;

multiplexingly applying the encoded upper layer signal and the encoded lower layer signal to a signal ~~encoder~~ decoder to produce the upper layer signal and the lower layer signal;

wherein the step of demodulating the input signal to produce an encoded lower layer signal comprises the steps of re-encoding and remodulating the upper layer signal, and extracting the lower layer signal from the input signal by subtracting the re-encoded and remodulated upper layer signal from the input signal.

46. (CANCELED)

47. (PREVIOUSLY PRESENTED) The method of claim 45, further comprising the step of de-interleaving the upper layer signal and the lower layer signal.

48. (CURRENTLY AMENDED) A method of decoding a coded input signal having an upper layer signal and a lower layer signal, comprising the steps of:

demodulating the coded input signal to produce a coded upper layer signal;

demodulating the coded input signal to produce a coded lower layer signal; and

multiplexingly decoding the coded upper layer signal and the coded ~~second~~ lower layer signal;

wherein the step of demodulating the coded input signal to produce a coded lower layer signal comprises the steps of decoding the coded upper layer signal, re-encoding and remodulating the decoded upper layer signal, and extracting the lower layer signal from coded input signal by subtracting the re-encoded and remodulated upper layer signal from the input signal.

49. (CURRENTLY AMENDED) The method of claim 48, wherein the step of alternately decoding the coded upper layer signal and the coded ~~second~~ lower layer signal comprises the step of alternately applying the coded upper layer signal and the coded lower layer signal to a decoder.

50. (CANCELED)

51. (CANCELED)

52. (CANCELED)

53. (PREVIOUSLY PRESENTED) An apparatus for decoding a coded input signal having an upper layer modulated signal and a lower layer modulated signal, comprising:
means for demodulating the input signal to produce an encoded upper layer signal;
means for demodulating the input signal to produce an encoded lower layer signal;
means for multiplexingly applying the encoded upper layer signal and the encoded lower layer signal to a signal decoder to produce the upper layer signal and the lower layer signal;
wherein the means for demodulating the input signal to produce an encoded lower layer signal comprises means for re-encoding and remodulating the upper layer signal, and means for extracting the lower layer signal from the input signal by subtracting the re-encoded and remodulated upper layer signal from the input signal.

54. (CANCELED)

55. (PREVIOUSLY PRESENTED) The apparatus of claim 53, further comprising means for de-interleaving the upper layer signal and the lower layer signal.

56. (CURRENTLY AMENDED) An apparatus for decoding a coded input signal having an upper layer signal and a lower layer signal, comprising:

- means for demodulating the coded input signal to produce a coded upper layer signal;
- means for demodulating the coded input signal to produce a coded lower layer signal; and
- means for multiplexingly decoding the coded upper layer signal and the coded ~~second~~ lower layer signal;

wherein the means for demodulating the coded input signal to produce a coded lower layer signal comprises means for decoding the coded upper layer signal, means for re-encoding and remodulating the decoded upper layer signal, and means for extracting the lower layer signal from coded input signal by subtracting the re-encoded and remodulated upper layer signal from the input signal.

57. (CURRENTLY AMENDED) The apparatus of claim 56, wherein the means for alternately decoding the coded upper layer signal and the coded ~~second~~ lower layer signal comprises means for alternately applying the coded upper layer signal and the coded lower layer signal to a decoder.

58. (CANCELED)

59. (CANCELED)

60. (CANCELED)

61. (PREVIOUSLY PRESENTED) An apparatus for decoding a coded input signal having an upper layer modulated signal and a lower layer modulated signal, comprising:

- a first demodulator for demodulating the input signal to produce an encoded upper layer signal;
- a second demodulator for demodulating the input signal to produce an encoded lower layer signal;
- a multiplexer, communicatively coupled to the first demodulator and the second demodulator, the multiplexer for multiplexingly applying the encoded upper layer signal and the encoded lower layer signal to a signal decoder;
- an encoder, communicatively coupled to the decoder, for re-encoding the upper layer signal;
- a modulator, communicatively coupled to the encoder, the modulator for remodulating the re-encoded upper layer signal; and
- an extractor, communicatively coupled to the modulator and the second demodulator, the extractor for extracting the lower layer signal from the input signal by subtracting the re-encoded and remodulated upper layer signal from the input signal.

62. (CANCELED)

63. (PREVIOUSLY PRESENTED) The apparatus of claim 61, further comprising a de-interleaver, communicatively coupled to the decoder.